In the claims:

Please amend the claims as follows:

1. (Original) In an optical transmission system having an optical transmission terminal with first and second optical interfaces, said first interface being configured to communicate in accordance with an industry-standard, network level protocol, said second interface being configured to communicate in accordance with a first optical layer transport protocol, an optical transmission span comprising:

an optical interface device that includes:

a third interface communicating with the second interface of the optical transmission terminal in accordance with the first optical layer transport protocol;

a fourth interface configured to communicate in accordance with a second optical layer transport protocol; and

a signal processing unit for transforming optical signals between the first and second optical layer transport protocols;

an optical transmission path optically coupled to the fourth optical interface of the optical interface device for transmitting optical signals in accordance with said second optical layer transport protocol.

2. (Currently Amended) ~~In the optical transmission system of claim 1, an~~ The optical transmission span of claim 1 wherein said third and fourth interfaces are bi-directional interfaces.

3. (Currently Amended) ~~In the optical transmission system of claim 1, an~~ The optical transmission span of claim 1 wherein said industry-standard, network level protocol is SONET/SDH.

4. (Currently Amended) ~~In the optical transmission system of claim 1, an~~ The optical transmission span of claim 1 wherein said industry-standard, network level protocol is ATM.

5. (Currently Amended) ~~In the optical transmission system of claim 1, an~~ The optical transmission span of claim 1 wherein said industry-standard, network level protocol is Gigabit Ethernet.

6. (Currently Amended) ~~In the optical transmission system of claim 1, an~~ The optical transmission span of claim 1 wherein said second optical layer transport protocol includes wavelength division multiplexing.

7. (Currently Amended) ~~In the optical transmission system of claim 1, an~~ The optical transmission span of claim 1 wherein said second optical layer transport protocol supports at least one signal process selected from the group consisting of gain equalization, bulk dispersion compensation, optical gain, Raman amplification, dispersion slope compensation, PMD compensation, and performance monitoring.

8. (Currently Amended) ~~In the optical transmission system of claim 6, an~~ The optical transmission span of claim 6 wherein said second optical layer transport protocol supports at least one signal process selected from the group consisting of gain equalization, bulk dispersion compensation, optical gain, Raman amplification, dispersion slope compensation, PMD compensation, and performance monitoring.

9. (Currently Amended) ~~In the optical transmission system of claim 1, an~~ The optical transmission span of claim 1 wherein said optical transmission path is an undersea optical transmission path.

10. (Currently Amended) ~~In the optical transmission system of claim 9, an~~ The optical transmission span of claim 9 wherein said second optical layer transport protocol is configured for said undersea optical transmission path.

11. (Currently Amended) ~~In the optical transmission system of claim 1, an~~ The optical transmission span of claim 1 wherein said signal processing unit performs at least one process on the optical signals selected from the group consisting of gain

equalization, bulk dispersion compensation, optical gain, Raman amplification, dispersion slope compensation, PMD compensation, dummy channel insertion, and performance monitoring.

12. (Original) A method of transmitting an optical signal, said method comprising the steps of:

receiving an optical signal in accordance with a first optical layer transport protocol from an optical transmission terminal having first and second optical interfaces, said first interface being configured to communicate in accordance with an industry-standard, network level protocol, said second interface being configured to communicate in accordance with the first optical layer transport protocol;

transforming the optical signal so that it is in conformance with a second optical layer transport protocol; and

directing the transformed optical signal through an optical transmission path in accordance with the second optical layer transport protocol.

13. (Original) The method of claim 12 wherein said optical transmission path is a bi-directional transmission path.

14. (Original) The method of claim 12 wherein said industry-standard, network level protocol is SONET/SDH.

15. (Original) The method of claim 12 wherein said industry-standard, network level protocol is ATM.

16. (Original) The method of claim 12 wherein said industry-standard, network level protocol is Gigabit Ethernet.

17. (Original) The method of clam 12 wherein said second optical layer transport protocol includes wavelength division multiplexing.

18. (Original) The method of claim 12 wherein said second optical layer transport protocol supports at least one signal process selected from the group consisting of gain equalization, bulk dispersion compensation, optical gain, Raman amplification, dispersion slope compensation, PMD compensation, and performance monitoring.

19. (Original) The method of claim 17 wherein said second optical layer transport protocol supports at least one signal process selected from the group consisting of gain equalization, bulk dispersion compensation, optical gain, Raman amplification, dispersion slope compensation, PMD compensation, and performance monitoring.

20. (Original) The method of claim 12 wherein said optical transmission path is an undersea optical transmission path.

21. (Original) The method of claim 20 wherein said second optical layer transport protocol is configured for said undersea optical transmission path.

22. (Original) The method of claim 12 wherein said signal processing unit performs at least one process on the optical signals selected from the group consisting of gain equalization, bulk dispersion compensation, optical gain, Raman amplification, dispersion slope compensation, PMD compensation, and performance monitoring.

23. (Currently Amended) An optical interface device for use in an optical transmission system having an optical transmission terminal with first and second optical interfaces, said first interface being configured to communicate in accordance with an industry-standard, network level protocol, said second interface being configured to communicate in accordance with a first optical layer transport protocol, said optical interface device comprising:

a third interface communicating with the second interface of the optical transmission terminal in accordance with the first optical layer transport protocol;

a fourth interface configured to communicate in accordance with a second optical layer transport protocol; and

a signal processing unit for transforming optical signals between the first and second optical layer transport protocols and for;

~~an optical transmission path optically coupled to the fourth optical interface of the optical interface device for~~ transmitting optical signals in accordance with said second optical layer transport protocol onto an optical transmission path.

24. (Original) The optical interface device of claim 23 wherein said third and fourth interfaces are bi-directional interfaces.

25. (Original) The optical interface device of claim 23 wherein said industry-standard, network level protocol is SONET/SDH.

26. (Original) The optical interface device of claim 23 wherein said industry-standard, network level protocol is ATM.

27. (Original) The optical interface device of claim 23 wherein said industry-standard, network level protocol is Gigabit Ethernet.

28. (Original) The optical interface device of claim 23 wherein said second optical layer transport protocol includes wavelength division multiplexing.

29. (Original) The optical interface device of claim 23 wherein said second optical layer transport protocol supports at least one signal process selected from the group consisting of gain equalization, bulk dispersion compensation, optical gain, Raman amplification, dispersion slope compensation, PMD compensation, dummy channel insertion, and performance monitoring.

30. (Original) The optical interface device of claim 28 wherein said second optical layer transport protocol supports at least one signal process selected from the group consisting of gain equalization, bulk dispersion compensation, optical gain, Raman

amplification, dispersion slope compensation, PMD compensation, and performance monitoring.

31. (Original) The optical interface device of claim 23 wherein said optical transmission path is an undersea optical transmission path.

32. (Original) The optical interface device of claim 31 wherein said second optical layer transport protocol is configured for said undersea optical transmission path.

33. (Original) The optical interface device of claim 23 wherein said signal processing unit performs at least one process on the optical signals selected from the group consisting of gain equalization, bulk dispersion compensation, optical gain, Raman amplification, dispersion slope compensation, PMD compensation, dummy channel insertion and performance monitoring.

34. (Currently Amended) An optical interface device comprising:

means for receiving an optical signal from an optical transmission terminal in accordance with a first terrestrial optical layer transport protocol;

means for transforming the optical signal so that it is in conformance with a second optical layer transport protocol; and

means for directing the transformed optical signal through an optical transmission path in accordance with the second optical layer transport protocol.

35. (New) The optical transmission span of claim 1 wherein said second optical layer transport protocol supports at least performance monitoring.

36. (New) The optical transmission span of claim 1 wherein said second optical layer transport protocol supports at least bulk dispersion compensation and performance monitoring.

37. (New) The method of claim 12 wherein said signal processing unit performs at least performance monitoring.

38. (New) The method of claim 12 wherein said signal processing unit performs at least bulk dispersion compensation and performance monitoring.

39. (New) An optical interface device for use in an optical transmission system that includes a selected one of any of a plurality of different optical transmission terminals each having first and second optical interfaces, each of said first interfaces being configured to communicate in accordance with an industry-standard, network level protocol, each of said second interfaces being configured to communicate in accordance with a different first optical layer transport protocol, said optical interface device comprising:

a third interface communicating with the second interface of a selected one of any of the plurality of different optical transmission terminals in accordance with the first optical layer transport protocol employed by the selected optical transmission terminal;

a fourth interface configured to communicate in accordance with a second optical layer transport protocol; and

a signal processing unit for transforming optical signals between the first optical layer transport protocol employed by the selected optical transmission terminal and the second optical layer transport protocol, and for transmitting optical signals in accordance with the second optical layer transport protocol onto an optical transmission path.

40. (New) The optical interface device of claim 39 wherein said third and fourth interfaces are bi-directional interfaces.

41. (New) The optical interface device of claim 39 wherein said industry-standard, network level protocol is SONET/SDH.

41. (New) The optical interface device of claim 39 wherein said industry-standard, network level protocol is ATM.

41. (New) The optical interface device of claim 39 wherein said industry-standard, network level protocol is Gigabit Ethernet.

42. (New) The optical interface device of claim 39 wherein said second optical layer transport protocol includes wavelength division multiplexing.

43. (New) The optical interface device of claim 39 wherein said second optical layer transport protocol supports at least one signal process selected from the group consisting of gain equalization, bulk dispersion compensation, optical gain, Raman amplification, dispersion slope compensation, PMD compensation, dummy channel insertion, and performance monitoring.

44. (New) The optical interface device of claim 42 wherein said second optical layer transport protocol supports at least one signal process selected from the group consisting of gain equalization, bulk dispersion compensation, optical gain, Raman amplification, dispersion slope compensation, PMD compensation, and performance monitoring.

45. (New) The optical interface device of claim 39 wherein said optical transmission path is an undersea optical transmission path.

46. (New) The optical interface device of claim 45 wherein said second optical layer transport protocol is configured for said undersea optical transmission path.

47. (New) The optical interface device of claim 39 wherein said signal processing unit performs at least one process on the optical signals selected from the group consisting of gain equalization, bulk dispersion compensation, optical gain, Raman amplification, dispersion slope compensation, PMD compensation, dummy channel insertion and performance monitoring.

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48. (New) The optical interface device of claim 39 wherein said second optical layer transport protocol supports at least performance monitoring.

49. (New) The optical interface device of claim 39 wherein said second optical layer transport protocol supports at least bulk dispersion compensation and performance monitoring.